UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,215	10/28/2003	Devlin M. Gualtieri	H0005226	7391

128 7590 07/17/2006

HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER	
SCHINDLER, DAVID M	

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/696,215	GUALTIERI, DEVLIN M.	
	Examiner	Art Unit	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the communication filed 4/10/2006.

Response to Arguments

2. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to Claims 1, 11, 20, 21, and 25,

All of the above claims include the phrase "an oscillator circuit coupled to the sensor coil and operable to generate a variable frequency sensor signal and supply the variable frequency sensor signal thereto" as stated on lines 5-6 of claim 1. The other claims contain similar forms of the above phrase. The Examiner notes that the oscillator circuit does not appear to generate a variable frequency sensor signal. The Examiner notes, for example, lines 7-9 of page 11 of applicant's specification which states that the sensor coil (302) and the capacitive circuit element (314) form a parallel-

resonant LC tank circuit, which determines the frequency of the oscillator circuit (304). Also note paragraph [0034] of page 11 of applicant's specification (especially lines 11-13). Therefore, it is not clear how the oscillator circuit is generating a variable frequency sensor signal and supplying the variable frequency sensor signal.

As to Claims 2-10, 12-19, and 22-24,

These claims stand rejected for incorporating the above rejected subject matter.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to Claims 1, 11, 20, 21, and 25,

The phrase "supply the variable frequency sensor signal thereto" on for example line 6 of claim 1 is not clearly understood. Specifically, the term "thereto" is not clearly understood. It is noted that the above claims appear to have the same phase in one form or another.

As to Claims 2-10, 12-19, and 22-24,

These claims stand rejected for incorporating the above rejected subject matter.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Barclay et al. (herein referred to as "Barclay") (5,854,553).

Barclay discloses a sensor coil (26), an oscillator circuit coupled to the sensor coil and operable to generate a variable frequency sensor signal and supply the variable frequency sensor signal thereto ((Figures 2 and 4) and (Claims 1, 3, 6, and 7)), the variable frequency sensor signal generated by the oscillator circuit having a frequency that varies based on the proximity of the sensor coil to the rotating element ((Figures 1a, 1b, 2, and 4) and (Column 5, Lines 1-36) and (Column 6, Lines 18-32) and (Claims 1, 3, 6, and 7)), whereby the variable frequency signal is a frequency modulated sensor signal (Figure 1b), a frequency modulation (FM) detector circuit ((60) and (62)) adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with, and is representative of, the proximity of the rotating element to the other element ((Figures 1a, 1b, 2, and 4) and (Column 6, Lines 18-32) and (Column 10, Lines 48-54)).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1, 2, 3, 6, 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270).

As to Claim 1,

Barclay discloses a sensor coil (26), an oscillator circuit coupled to the sensor coil and operable to generate a variable frequency sensor signal and supply the variable sensor signal thereto ((Figures 2 and 4) and (Claims 1, 3, 6, and 7)), the variable frequency sensor signal generated by the oscillator circuit having a frequency that varies based on the proximity of the sensor coil to a conductive body ((Figures 1a, 1b, 2, and 4) and (Column 5, Lines 1-36) and (Column 6, Lines 18-32) and (Claims 1, 3, 6, and 7)), whereby the variable frequency sensor signal is a frequency modulated sensor

signal (Figure 1b), and a frequency modulation (FM) detector circuit ((60) and (62)) adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with, and is representative of, the proximity of the conductive body to the non-rotating component ((Figures 1a, 1b, 2, and 4) and (Column 6, Lines 18-32) and (Column 10, Lines 48-54)).

Barclay does not disclose that the conductive body is a turbine wheel including a plurality of turbine blades, and that the non-rotating component is a non-rotating turbine component.

Oates discloses the conductive body is a turbine wheel including a plurality of turbine blades, and that the non-rotating component is a non-rotating turbine component ((Column 9, Lines 25-36) and (Figure 1))..

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include the conductive body is a turbine wheel including a plurality of turbine blades, and that the non-rotating component is a non-rotating turbine component as taught by Oates in order to be able to measuring turbine blade tip distance at various points (Abstract, Lines 1-3).

As to Claim 2,

Barclay does not disclose a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud.

Oates discloses a display coupled to receive the proximity signal from a detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud (Column 11, Lines 19-32).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud given the above disclosure and teaching of Oates in order to provide a readily available readout to a user.

As to Claim 3,

Barclay discloses the FM detector circuit includes and FM demodulator ((Figure 2) and (Column 6, Lines 18-32)).

As to Claim 6,

Barclay discloses the oscillator circuit includes one capacitance circuit element electrically coupled in parallel with the sensor coil (Figures 1b and 4).

As to Claim 7,

Barclay discloses a coaxial cable coupled between the sensor coil and the oscillator circuit, the coaxial cable having a capacitance that acts at least as at least one of the capacitance circuit elements ((Figures 1b and 4) and (Column 5, Lines 13-36)).

As to Claim 8,

Barclay discloses a coaxial cable coupled between the sensor coil and the oscillator circuit, the coaxial cable having an effective capacitance that is electrically

coupled in parallel with the sensor coil, to thereby form an LC circuit ((Figures 1b and 4) and (Column 5, Lines 13-36)).

As to Claim 10,

Barclay discloses a peak detector coupled to receive the proximity signal an operable, in response thereto, to determine a peak value of the proximity signal (Column 6, Lines 18-32).

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and in further view of Iida et al. (6,658,216).

Barclay in view of Oates discloses as explained above.

Barclay in view of Oates does not disclose the FM demodulator includes a ratio detector.

Iida et al. discloses the FM demodulator includes a ratio detector (Column 6, Lines 33-37).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates to include the FM demodulator includes a ratio detector as taught by Iida et al. in order to improve signal demodulation.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and in further view of Arms et al. (5,497,147).

Barclay in view of Oates does not disclose the oscillator circuit is configured to wirelessly transmit the sensor signal; and the FM detector circuit is configured to wirelessly receive the transmitted sensor signal.

Arms et al. discloses the oscillator circuit is configured to wirelessly transmit the sensor signal; and the FM detector circuit is configured to wirelessly receive the transmitted sensor signal ((Figures 4 and 5) and (Column 2, Lines 33-51).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates to include the oscillator circuit is configured to wirelessly transmit the sensor signal; and the FM detector circuit is configured to wirelessly receive the transmitted sensor signal as taught by Arms et al. in order to enhance functionality by allowing for remote data processing.

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and in further view of Wilkinson (GB 2167603 A).

Barclay in view of Oates discloses as explained above.

Barclay in view of Oates does not disclose a ceramic core, and a conductor selected from a group consisting of platinum and molybdenum.

Wilkinson discloses a ceramic core and a conductor consisting of platinum (Page 1, Left Column, Lines 51-54).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates to include a ceramic core and a conductor consisting of

platinum as taught by Wilkinson in order to have a sensor that gives a fast an accurate response and can withstand corrosive environments (Page 1, Left Column, Lines 29-33).

15. Claims 11, 12, 14, 15, 16, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and Stowell (4,842,477).

As to Claim 11,

Barclay discloses a sensor coil (26), an oscillator circuit coupled to the sensor coil and operable to generate a variable frequency sensor signal and supply the variable sensor signal thereto ((Figures 2 and 4) and (Claims 1, 3, 6, and 7)), the variable frequency sensor signal generated by the oscillator circuit having a frequency that varies based on the proximity of the sensor coil to a conductive body ((Figures 1a, 1b, 2, and 4) and (Column 5, Lines 1-36) and (Column 6, Lines 18-32) and (Claims 1, 3, 6, and 7)), whereby the variable frequency sensor signal is a frequency modulated sensor signal (Figure 1b), and a frequency modulation (FM) detector ((60) and (62)) adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with, and is representative of, the proximity of the conductive body to the non-rotating component ((Figures 1a, 1b, 2, and 4) and (Column 6, Lines 18-32) and (Column 10, Lines 48-54)).

Barclay does not disclose that the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine

component, and a controller coupled to receive the proximity signal from the FM detector and operable, in response thereto, to control the proximity of the turbine blades to the non-rotating turbine component.

Oates discloses the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component ((Column 9, Lines 25-36) and (Figure1)).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component as taught by Oates in order to be able to measuring turbine blade tip distance at various points (Abstract, Lines 1-3).

Stowell discloses controlling the proximity of the turbine blades to the non-rotating turbine component (Abstract, Lines 10-15).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include a controller to control the proximity of the turbine blades to the non-rotating turbine component given the above disclosure and the teaching of Stowell in order to prevent turbine malfunction by preventing blade damage.

As to Claim 12,

Barclay does not disclose the non-rotating component is either a turbine case or a component coupled to the turbine shroud, and the controller controls the proximity of the turbine blades to the non-rotating turbine component by controlling turbine shroud temperature.

Stowell discloses the non-rotating component is turbine case, and controlling the proximity of the turbine blades to the non-rotating component by controlling turbine shroud temperature (Abstract, Lines 10-15).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include the non-rotating component is either a turbine case or a component coupled to the turbine shroud, and the controller controls the proximity of the turbine blades to the non-rotating turbine component by controlling turbine shroud temperature given the above disclosure and teaching of Stowell in order to prevent turbine malfunction by preventing blade damage.

As to Claim 14,

Barclay does not disclose a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud.

Oates discloses a display coupled to receive the proximity signal from a detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud (Column 11, Lines 19-32).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud given the above disclosure and teaching of Oates in order to provide a readily available readout to a user.

As to Claim 15,

Barclay discloses the oscillator circuit includes one capacitance circuit element electrically coupled in parallel with the sensor coil (Figures 1b and 4).

As to Claim 16,

Barclay discloses a coaxial cable coupled between the sensor coil and the oscillator circuit, the coaxial cable having a capacitance that acts at least as at least one of the capacitance circuit elements ((Figures 1b and 4) and (Column 5, Lines 13-36)).

As to Claim 17,

Barclay discloses a coaxial cable coupled between the sensor coil and the oscillator circuit, the coaxial cable having an effective capacitance that is electrically coupled in parallel with the sensor coil, to thereby form an LC circuit ((Figures 1b and 4) and (Column 5, Lines 13-36)).

As to Claim 19,

Barclay discloses a peak detector coupled to receive the proximity signal an operable, in response thereto, to determine a peak value of the proximity signal (Column 6, Lines 18-32).

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and Stowell (4,842,477) and in further view of Davison (4,230,436).

Barclay in view of Oates and Stowell discloses as explained above.

Barclay in view of Oates and Stowell does not disclose the controller, in response

to the proximity signal, supplies one or more valve control signals, and wherein the system includes one or more valves in fluid communication between a cooling air source and the turbine shroud, each valve having an actuator coupled to receive one or more of the valve control signals and operable, in response thereto, to selectively move its associated valve between an open position and a closed position, to thereby selectively cool the turbine case.

Davison discloses one valve in fluid communication between a cooling air source, the valve having an actuator that selectively moves the valve between an open position and a closed position, to thereby selectively maintain optimum rotor-to-shroud clearances ((Figures 1 and 8A-8C) and (Column 6, Lines 28-33) and (Column 8, 24-30) and (Abstract, Lines 4-11)).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates and Stowell to include the controller, in response to the proximity signal, supplies one or more valve control signals, and wherein the system includes one or more valves in fluid communication between a cooling air source and the turbine shroud, each valve having an actuator coupled to receive one or more of the valve control signals and operable, in response thereto, to selectively move its associated valve between an open position and a closed position, to thereby selectively cool the turbine case given the above disclosure and teaching of Davison in order to prevent turbine malfunction by preventing blade damage.

17. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and Stowell (4,842,477) and in further view of Wilkinson (GB 2167603 A).

Barclay in view of Oates and Stowell discloses as explained above.

Barclay in view of Oates and Stowell does not disclose a ceramic core, and a conductor selected from a group consisting of platinum and molybdenum.

Wilkinson discloses a ceramic core and a conductor consisting of platinum (Page 1, Left Column, Lines 51-54).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates and Stowell to include a ceramic core and a conductor consisting of platinum as taught by Wilkinson in order to have a sensor that gives a fast an accurate response and can withstand corrosive environments (Page 1, Left Column, Lines 29-33).

18. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270).

As to Claim 20,

Barclay discloses a sensor coil (26) disposed at least partially within a case, an oscillator circuit coupled to the sensor coil and operable to generate a variable frequency sensor signal and supply the variable sensor signal thereto ((Figures 2 and 4)

and (Claims 1, 3, 6, and 7)), the variable frequency sensor signal generated by the oscillator circuit having a frequency that varies based on the proximity of the sensor coil to a conductive body ((Figures 1a, 1b, 2, and 4) and (Column 5, Lines 1-36) and (Column 6, Lines 18-32) and (Claims 1, 3, 6, and 7)), whereby the variable frequency sensor signal is a frequency modulated sensor signal (Figure 1b), and a frequency modulation (FM) detector circuit ((60) and (62)) adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with, and is representative of, the proximity of the conductive body to the non-rotating component ((Figures 1a, 1b, 2, and 4) and (Column 6, Lines 18-32) and (Column 10, Lines 48-54)).

Barclay does not disclose that the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component, a turbine case, a turbine wheel rotationally mounted within the turbine case, a plurality of turbine blades extending from the turbine wheel toward the turbine case, and a turbine blade proximity system.

Oates discloses the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component, a turbine case, a turbine wheel rotationally mounted within the turbine case, a plurality of turbine blades extending from the turbine wheel toward the turbine case, and a turbine blade proximity system ((Title) and (Abstract) and (Figure 1) and (Column 9, Lines 25-36)).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component, a turbine case, a turbine wheel rotationally mounted within the turbine case, a plurality of turbine blades extending from the turbine wheel toward the turbine case, and a turbine blade proximity system as taught by Oates in order to be able to measuring turbine blade tip distance at various points (Abstract, Lines 1-3) and prevent turbine malfunction by preventing blade damage.

19. Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270).

As to Claim 21,

Barclay discloses generating and supplying a variable frequency sensor signal, the variable frequency sensor signal that is generated having a frequency that varies based on the proximity of a conductive body to the non-rotating component, whereby the variable frequency sensor signal is a frequency modulated sensor signal, demodulating the frequency modulated sensor signa, to thereby supply a proximity signal having an amplitude that varies with, and is representative of, the proximity to the conductive body to the non-rotating component ((Figures 1a, 1b, 2, and 4) and (Column 6, Lines 18-32) and (Column 10, Lines 48-54) and (Column 5, Lines 1-36) and (Claims 1, 3, 6, and 7)).

Barclay does not disclose the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component.

Oates discloses the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component ((Column 9, Lines 25-36) and (Figure 1)).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component as taught by Oates in order to be able to measuring turbine blade tip distance at various points (Abstract, Lines 1-3).

As to Claim 24,

Barclay discloses detecting a peak value of the proximity amplitude variations, to thereby determine a minimum conductive body proximity to the non-rotating component ((Figures 1a, 1b, 2, and 4) and (Column 6, Lines 18-32) and (Column 10, Lines 48-54) and (Column 5, Lines 1-36) and (Claims 1, 3, 6, and 7)).

Barclay does not disclose the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component.

Oates discloses the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component ((Column 9, Lines 25-36) and (Figure 1)).

It would have been obvious to a person of ordinary skill in the art to modify Barclay to include the conductive body is a turbine wheel including a plurality of turbine blades, the non-rotating component is a non-rotating turbine component as taught by Oates in order to be able to measuring turbine blade tip distance at various points (Abstract, Lines 1-3).

20. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay et al. (herein referred to as "Barclay") (5,854,553) in view of Oates et al. (herein referred to as "Oates") (4,644,270) and in further view of Stowell (4,842,477).

As to Claim 22,

Barclay in view of Oates discloses as explained above.

Barclay in view of Oates does not disclose varying the proximity of each of the turbine blades to the non-rotating turbine component in response to the proximity signal.

Stowell discloses varying the proximity of each of the turbine blades to the non-rotating turbine component for active clearance control ((see title) and (Abstract, Lines 10-15).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates to include varying the proximity of each of the turbine blades to the non-rotating turbine component in response to the proximity signal given the above disclosure and teaching of Stowell in order to prevent turbine malfunction by preventing blade damage.

As to Claim 23,

Barclay in view of Oates does not disclose varying the non-rotating turbine component temperature in response to the proximity signal, to thereby vary the proximity of each of the turbine blades to the non-rotating component.

Stowell discloses varying non-rotating turbine component temperature to thereby vary the proximity of each of the turbine blades to the non-rotating turbine component (Abstract, Lines 10-15).

It would have been obvious to a person of ordinary skill in the art to modify Barclay in view of Oates to include varying the non-rotating turbine component temperature in response to the proximity signal, to thereby vary the proximity of each of the turbine blades to the non-rotating component given the above disclosure and teaching of Stowell in order to prevent turbine malfunction by preventing blade damage.

Allowable Subject Matter

21. The allowance of claims 7, 8, 16, and 17 is withdrawn in favor of the above rejections.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Schindler
Examiner
Art Unit 2862

DS

EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800